

# Purdue University Weed Science

## COMPARISON OF PRE-EMERGENCE PROGRAMS ON PALMER AMARANTH

Trial ID: 14S-CCP-CTS-01      Location: Cass County      Trial Year: 2014  
 Protocol ID: 14S-CCP-CTS-01      Investigator: Dr. Bill Johnson  
 Project ID:      Study Director: Joe Ikley  
                                  Sponsor Contact:

### General Trial Information

**Study Director:** Joe Ikley      **Title:** Research Associate  
**Investigator:** Dr. Bill Johnson      **Title:** Professor

**Discipline:** H herbicide  
**Initiation Date:** 5/6/2014  
**Completion Date:** 7/3/2014

### Trial Location

**City:** Twelve Mile      **Country:** USA United States  
**State/Prov.:** Indiana  
**Postal Code:** 46988

### Contacts

**Study Director:** Joe Ikley      **Title:** Research Associate  
**Organization:** Purdue University  
**Address:** 915 West State Street      **Phone No.:** 765-494-0891  
**City+State/Prov:** West Lafayette      **Mobile No.:** 410-596-9091  
**Postal Code:** 47907      **E-mail:** jikley@purdue.edu

**Investigator:** Dr. Bill Johnson      **Title:** Professor  
**Organization:** Purdue University  
**Address:** 915 West State Street      **Phone No.:** 765-494-4656  
**City+State/Prov:** West Lafayette      **Mobile No.:** 765-404-9801  
**Postal Code:** 47907      **E-mail:** wgj@purdue.edu

### Crop Description

**Crop 1:** GLXMA      Glycine max Soybean  
**Variety:** ASGROW 2933  
**Description:** RR

**Planting Rate, Unit:** 140000 S/A      **Planting Date:** 5/6/2014  
**Depth, Unit:** 1.5 IN      **Planting Method:** PLANTD planted  
**Row Spacing, Unit:** 30 IN      **Planting Equipment:** PP Plot Planter  
**Soil Temperature, Unit:** 60 F      **Emergence Date:** 5/10/2014  
**Soil Moisture:** DRY dry

### Pest Description

**Pest 1 Type:** W      **Code:** AMAPA Amaranthus palmeri  
**Common Name:** Palmer amaranth  
**Description:** GLY-RES

### Site and Design

**Treated Plot Width:** 10 FT      **Site Type:** FIELD field  
**Treated Plot Length:** 30 FT      **Experimental Unit:** 1 PLOT plot  
**Treated Plot Area:** 300 FT<sup>2</sup>      **Treatments:** 30      **Tillage Type:** CONTIL conventional-till  
**Replications:** 4      **Study Design:** RACOB� Randomized Complete Block (RCB)

### Soil Description

**Description Name:** BLOOMFIELD LOAMY FINE SAND  
**% Sand:** 72      **% OM:** 2.1      **Texture:** LFS      LOAMY FINE SAND  
**% Silt:** 19      **pH:** 6.9      **Soil Name:** BLOOMFIELD LOAMY FINE SAND  
**% Clay:** 9      **CEC:** 8.5  
**Soil Drainage:** E      EXCELLENT

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## Application Description

	A
Application Date:	5/7/2014
Appl. Start Time:	6:30
Appl. Stop Time:	9:00 AM
Application Method:	SPRAY
Application Timing:	POSPOS
Application Placement:	BROADC
Applied By:	Legleiter
Air Temperature, Unit:	50 F
% Relative Humidity:	58
Wind Velocity, Unit:	5 MPH
Wind Direction:	E
Dew Presence (Y/N):	N no
Soil Temperature, Unit:	55 F
Soil Moisture:	DRY
% Cloud Cover:	70

## Crop Stage At Each Application

	A
Crop 1 Code, BBCH Scale:	GLXMA BSOY

## Pest Stage At Each Application

	A
Pest 1 Code, Type, Scale:	AMAPA W

## Application Equipment

	A
Appl. Equipment:	CO2 Backpack
Equipment Type:	SPRBAC
Operation Pressure, Unit:	18 PSI
Nozzle Type:	Flat Fan
Nozzle Size:	XR11002
Nozzle Spacing, Unit:	15 IN
Nozzles/Row:	8
Boom Length, Unit:	10 FT
Boom Height, Unit:	18 IN
Ground Speed, Unit:	3 MPH
Carrier:	H2O
Water Hardness (ppm CaCO3):	150
Spray Volume, Unit:	15 GAL/AC
Mix Size, Unit:	1.8 Liters
Propellant:	CO2
Tank Mix (Y/N):	N no

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Trial Comments

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    Sponsor Contact:

Reps: 4      Plots: 10 by 30 feet  
 Spray vol: 15 gal/ac      Mix size: 1.8 liters (min 1.5642)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	2	3	4
1	Untreated Check									101	403	805	1005
2	WARRANT	3 LB/GAL		EC	3 pt/a		PRE	A	45.0 ml/mx	102	503	711	905
3	DUAL II MAGNUM	7.64 LB/GAL		L	1 pt/a		PRE	A	15.0 ml/mx	103	412	801	1003
4	ZIDUA	85 %		WG	3 oz/a		PRE	A	2.696 g/mx	104	311	603	904
5	SENCOR	75 %		WG	8 oz/a		PRE	A	7.19 g/mx	105	312	608	912
6	SPARTAN	4 LB/GAL		SC	12 fl oz/a		PRE	A	11.25 ml/mx	106	511	607	907
7	VALOR SX	51 %		WG	2 oz/a		PRE	A	1.797 g/mx	107	407	704	909
8	AUTHORITY FIRST	70 %		DF	6.5 oz/a		PRE	A	5.842 g/mx	108	410	701	902
9	AUTHORITY XL	70 %		DF	4 oz/a		PRE	A	3.595 g/mx	109	411	803	1012
10	AUTHORITY ASSIST	4 LB/GAL		SC	6 fl oz/a		PRE	A	5.625 ml/mx	110	502	806	1008
11	VALOR XLT @ 3.5 OZ/A									111	307	611	906
	VALOR CLASSIC	51 %		WG	2.05 oz/a		PRE	A	1.842 g/mx				
		25 %	AW/W	DF	1.45 oz/a		PRE	A	1.303 g/mx				
12	ENVIVE @ 5.3 OZ/A									112	506	710	807
	CLASSIC	25 %	AW/W	DF	1.92 oz/a		PRE	A	1.725 g/mx				
	HARMONY SG	50 %		SG	0.3 oz/a		PRE	A	0.2696 g/mx				
	VALOR	51 %		WG	3.03 oz/a		PRE	A	2.723 g/mx				
13	DUAL II MAGNUM	7.64 LB/GAL		L	1 pt/a		PRE	A	15.0 ml/mx	201	510	604	1009
	SENCOR	75 %		WG	8 oz/a		PRE	A	7.19 g/mx				
14	CANOPY	75 %		DG	4 oz/a		PRE	A	3.595 g/mx	202	310	705	811
	DUAL II MAGNUM	7.64 LB/GAL		L	1 pt/a		PRE	A	15.0 ml/mx				
15	CANOPY	75 %		DG	4 oz/a		PRE	A	3.595 g/mx	203	404	804	1006
	ZIDUA	85 %		WG	1.5 oz/a		PRE	A	1.348 g/mx				
16	OPTILL PRO @ 12 OZ/A									204	406	612	1007
	OPTILL	68 %		WG	2 oz/a		PRE	A	1.797 g/mx				
	OUTLOOK	6 LB/GAL		EC	10 fl oz/a		PRE	A	9.375 ml/mx				
17	ANTHEM	2.15 LB/GAL		SE	6 fl oz/a		PRE	A	5.625 ml/mx	205	408	708	1002
18	AUTHORITY ELITE	7 LB/GAL		EC	25 fl oz/a		PRE	A	23.44 ml/mx	206	505	602	1001
19	AUTHORITY XL	70 %		DF	4 oz/a		PRE	A	3.595 g/mx	207	501	601	1011
	DUAL II MAGNUM	7.64 LB/GAL		L	1 pt/a		PRE	A	15.0 ml/mx				
20	AUTHORITY MTZ	45 %		WG	20 oz/a		PRE	A	17.97 g/mx	208	508	606	808
21	FIERCE	76 %		WG	3 oz/a		PRE	A	2.696 g/mx	209	401	712	810
22	FIERCE XLT @ 4 OZ/A									210	309	706	910
	FIERCE	76 %		WG	2.93 oz/a		PRE	A	2.633 g/mx				
	CLASSIC	25 %		WG	1.07 oz/a		PRE	A	0.9616 g/mx				
23	ENVIVE @ 5.3 OZ/A									211	509	609	901
	CLASSIC	25 %	AW/W	DF	1.92 oz/a		PRE	A	1.725 g/mx				
	HARMONY SG	50 %		SG	0.3 oz/a		PRE	A	0.2696 g/mx				
	VALOR	51 %		WG	3.03 oz/a		PRE	A	2.723 g/mx				
	ZIDUA	85 %		WG	1.5 oz/a		PRE	A	1.348 g/mx				
24	VALOR SX	51 %		WG	2 oz/a		PRE	A	1.797 g/mx	212	504	802	908
	WARRANT	3 LB/GAL		EC	3 pt/a		PRE	A	45.0 ml/mx				
25	TRIVENCE @ 8 OZ/A									301	402	703	911
	CLASSIC	25 %	AW/W	DF	1.25 oz/a		PRE	A	1.123 g/mx				
	SENCOR 75DF	75 %	AW/W	DF	4.75 oz/a		PRE	A	4.269 g/mx				
	VALOR	51 %		WG	2 oz/a		PRE	A	1.797 g/mx				
26	PREFIX	5.29 LB/GAL		EC	2 pt/a		PRE	A	30.0 ml/mx	302	409	610	903
	SENCOR	75 %		WG	8 oz/a		PRE	A	7.19 g/mx				

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Reps: 4

Plots: 10 by 30 feet

Spray vol: 15 gal/ac

Mix size: 1.8 liters (min 1.5642)

Trt No.	Treatment Name	Form Conc	Form Unit	Form Type	Rate	Rate Unit	Growth Stage	Appl Code	Amt Product to Measure	Rep 1	2	3	4
27	AUTHORITY MTZ DUAL II MAGNUM	45 %	7.64 LB/GAL	WG L	16 oz/a 1 pt/a		PRE PRE	A A	14.38 g/mx 15.0 ml/mx	303	308	702	809
28	CANOPY FIERCE	75 % 76 %		DG WG	4 oz/a 2 oz/a		PRE PRE	A A	3.595 g/mx 1.797 g/mx	304	405	605	1004
29	TRIVENCE @ 8 OZ/A CLASSIC SENCOR 75DF VALOR ZIDUA	25 % 75 % 51 % 85 %	AW/W AW/W	DF DF WG WG	1.25 oz/a 4.75 oz/a 2 oz/a 1.5 oz/a		PRE PRE PRE PRE	A A A A	1.123 g/mx 4.269 g/mx 1.797 g/mx 1.348 g/mx	305	507	709	1010
30	Untreated Check									306	512	707	812

Sort Order: Replicate 1

Product quantities required for listed treatments and applications of trials included in this table:

Amount*	Unit	Treatment Name	Form Conc	Form Type	Lot Code
89.990	ml	WARRANT	3	EC	
74.992	ml	DUAL II MAGNUM	7.64	L	
6.740	g	ZIDUA	85	WG	
21.569	g	SENCOR	75	WG	
11.250	ml	SPARTAN	4	SC	
3.595	g	VALOR SX	51	WG	
5.842	g	AUTHORITY FIRST	70	DF	
7.190	g	AUTHORITY XL	70	DF	
5.625	ml	AUTHORITY ASSIST	4	SC	
10.883	g	VALOR	51	WG	
7.001	g	CLASSIC	25	DF	
0.539	g	HARMONY SG	50	SG	
10.784	g	CANOPY	75	DG	
1.797	g	OPTILL	68	WG	
9.375	ml	OUTLOOK	6	EC	
5.625	ml	ANTHEM	2.15	SE	
23.437	ml	AUTHORITY ELITE	7	EC	
32.353	g	AUTHORITY MTZ	45	WG	
7.127	g	FIERCE	76	WG	
0.962	g	CLASSIC	25	WG	
8.538	g	SENCOR 75DF	75	DF	
29.997	ml	PREFIX	5.29	EC	

\* 'Per area' calculations based on spray volume= 15 gal/ac, mix size= 1.8 liters (mix size basis).

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Pest Type				W Weed		W Weed		
Pest Code				AMAPA		AMAPA		
Pest Scientific Name				Amaranthus pal>		Amaranthus pal>		
Pest Name				Palmer amaranth		Palmer amaranth		
Crop Code	GLXMA				GLXMA			GLXMA
BBCH Scale	BSOY				BSOY			BSOY
Crop Scientific Name	Glycine max				Glycine max			Glycine max
Crop Name	Soybean				Soybean			Soybean
Part Rated	PLOT C			PLOT P	PLOT C			PLOT C
Rating Date	5/28/2014			5/28/2014	6/6/2014			6/19/2014
Rating Type	PHYGEN			CONTRO	PHYGEN			CONTRO
Rating Unit	%			%	%			%
Days After First/Last Applic.	21 21			21 21	30 30			43 43
Trt-Eval Interval	21 DA-A			21 DA-A	30 DA-A			43 DA-A
ARM Action Codes	P			P	P			P
Number of Decimals	0			0	0			0
Trt Treatment	Rate	Appl						
No. Name	Rate Unit	Code	Plot	1	2	3	4	5
1 Untreated Check			101	0	0	0	0	0
			403	0	0	0	0	0
			805	0	0	0	0	0
			1005	0	0	0	0	0
			Mean =	0	0	0	0	0
2 WARRANT	3 pt/a	A	102	3	100	0	80	0
			503	0	75	0	60	0
			711	0	95	2	80	0
			905	1*	100	0*	90	0*
			Mean =	1	93	1	78	0
3 DUAL II MAGNUM	1 pt/a	A	103	2	95	3	80	0
			412	0	90	0	60	0
			801	3	100	0	70	0
			1003	2*	96*	0*	80	0*
			Mean =	2	95	1	73	0
4 ZIDUA	3 oz/a	A	104	3	100	0	95	0
			311	0	100	3	90	0
			603	0	100	0	95	0
			904	1*	100	0*	100	0*
			Mean =	1	100	1	95	0
5 SENCOR	8 oz/a	A	105	5	80	0	40	0
			312	0	80	0	20	0
			608	3	70	3	20	0
			912	3*	90	0*	60	0*
			Mean =	3	80	1	35	0
6 SPARTAN	12 fl oz/a	A	106	10	100	20	100	15
			511	15	100	15	99	12
			607	15	100	30	95	20
			907	13*	100	19*	100	14*
			Mean =	13	100	21	99	15
7 VALOR SX	2 oz/a	A	107	3	100	5	90	0
			407	0	95	3	80	0
			704	7	100	2	100	0
			909	3*	100	1*	100	0*
			Mean =	3	99	3	93	0
8 AUTHORITY FIRST	6.5 oz/a	A	108	10	100	15	90	12
			410	8	100	5	95	5
			701	12	100	8	100	5
			902	10*	100	7*	100	6*
			Mean =	10	100	9	96	7

# Purdue University Weed Science

Pest Type			W Weed AMAPA				W Weed AMAPA			
Pest Code			Amaranthus pal>				Amaranthus pal>			
Pest Scientific Name			Palmer amaranth				Palmer amaranth			
Pest Name										
Crop Code	GLXMA				GLXMA				GLXMA	
BBCH Scale	BSOY				BSOY				BSOY	
Crop Scientific Name	Glycine max				Glycine max				Glycine max	
Crop Name	Soybean				Soybean				Soybean	
Part Rated	PLOT C		PLOT P		PLOT C		PLOT P		PLOT C	
Rating Date	5/28/2014		5/28/2014		6/6/2014		6/6/2014		6/19/2014	
Rating Type	PHYGEN		CONTRO		PHYGEN		CONTRO		PHYGEN	
Rating Unit	%		%		%		%		%	
Days After First/Last Applic.	21 21		21 21		30 30		30 30		43 43	
Trt-Eval Interval	21 DA-A		21 DA-A		30 DA-A		30 DA-A		43 DA-A	
ARM Action Codes	P		P		P		P		P	
Number of Decimals	0		0		0		0		0	
Trt Treatment	Rate	Appl								
No. Name	Rate Unit	Code Plot	1	2	3	4	5			
9 AUTHORITY XL	4 oz/a	A 109	8	95	5	90	5			
		411	5	100	5	80	2			
		803	25	100	10	100	5			
		1012	13*	99*	4*	100	3*			
		Mean =	13	99	6	93	4			
10 AUTHORITY ASSIST	6 fl oz/a	A 110	10	100	5	100	5			
		502	0	100	0	90	0			
		806	3	100	5	90	0			
		1008	4*	100*	1*	90	0*			
		Mean =	4	100	3	93	1			
11 VALOR XLT @ 3.5 OZ/A		111	10	100	10	100	8			
VALOR	2.05 oz/a	A 307	3	100	5	100	3			
CLASSIC	1.45 oz/a	A 611	0	100	0	100	5			
		906	4*	100	3*	100	4*			
		Mean =	4	100	4	100	5			
12 ENVIVE @ 5.3 OZ/A		112	12	100	10	100	10			
CLASSIC	1.92 oz/a	A 506	5	100	5	100	3			
HARMONY SG	0.3 oz/a	A 710	3	100	3	100	2			
VALOR	3.03 oz/a	A 807	5	100	3	100	3			
		Mean =	6	100	5	100	5			
13 DUAL II MAGNUM	1 pt/a	A 201	0	100	3	90	0			
SENCOR	8 oz/a	A 510	0	95	0	70	0			
		604	0	80	0	70	0			
		1009	0*	93*	0*	70	0*			
		Mean =	0	92	1	75	0			
14 CANOPY	4 oz/a	A 202	3	100	3	80	3			
DUAL II MAGNUM	1 pt/a	A 310	3	100	5	100	4			
		705	3	100	5	90	5			
		811	3	100	3	100	3			
		Mean =	3	100	4	93	4			
15 CANOPY	4 oz/a	A 203	5	100	5	100	2			
ZIDUA	1.5 oz/a	A 404	3	100	5	95	5			
		804	5	100	5	85	3			
		1006	4*	100*	3*	100	2*			
		Mean =	4	100	4	95	3			
16 OPTILL PRO @ 12 OZ/A		204	3	100	10	95	7			
OPTILL	2 oz/a	A 406	5	99	15	75	10			
OUTLOOK	10 fl oz/a	A 612	0	100	5	60	0			
		1007	3*	100*	8*	100	4*			
		Mean =	3	100	9	83	5			
17 ANTHEM	6 fl oz/a	A 205	0	100	0	75	0			
		408	0	100	0	85	0			
		708	0	100	0	90	0			
		1002	0*	100*	0*	100	0*			
		Mean =	0	100	0	88	0			
18 AUTHORITY ELITE	25 fl oz/a	A 206	0	100	3	85	2			
		505	0	100	10	100	4			
		602	0	100	0	80	0			
		1001	0*	100*	2*	90	1*			
		Mean =	0	100	4	89	2			

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Pest Type			W Weed AMAPA				W Weed AMAPA			
Pest Code			Amaranthus pal>				Amaranthus pal>			
Pest Scientific Name			Palmer amaranth				Palmer amaranth			
Pest Name										
Crop Code	GLXMA				GLXMA				GLXMA	
BBCH Scale	BSOY				BSOY				BSOY	
Crop Scientific Name	Glycine max				Glycine max				Glycine max	
Crop Name	Soybean				Soybean				Soybean	
Part Rated	PLOT C		PLOT P		PLOT C		PLOT P		PLOT C	
Rating Date	5/28/2014		5/28/2014		6/6/2014		6/6/2014		6/19/2014	
Rating Type	PHYGEN		CONTRO		PHYGEN		CONTRO		PHYGEN	
Rating Unit	%		%		%		%		%	
Days After First/Last Applic.	21 21		21 21		30 30		30 30		43 43	
Trt-Eval Interval	21 DA-A		21 DA-A		30 DA-A		30 DA-A		43 DA-A	
ARM Action Codes	P		P		P		P		P	
Number of Decimals	0		0		0		0		0	
Trt No.	Treatment Name	Rate	Appl Code	Plot	1	2	3	4	5	
19	AUTHORITY XL	4 oz/a	A	207	7	100	3	100	3	
	DUAL II MAGNUM	1 pt/a	A	501	0	100	0	95	0	
				601	3	100	7	95	3	
				1011	3*	100*	1*	100	1*	
				Mean =	3	100	3	98	2	
20	AUTHORITY MTZ	20 oz/a	A	208	15	100	15	100	12	
				508	8	100	15	85	8	
				606	8	100	5	100	5	
				808	10	100	7	95	5	
				Mean =	10	100	11	95	8	
21	FIERCE	3 oz/a	A	209	5	100	0	95	0	
				401	0	100	0	99	0	
				712	0	100	0	90	0	
				810	5	100	0	100	0	
				Mean =	3	100	0	96	0	
22	FIERCE XLT @ 4 OZ/A			210	3	100	5	99	3	
	FIERCE	2.93 oz/a	A	309	0	100	3	100	3	
	CLASSIC	1.07 oz/a	A	706	2	100	3	95	2	
				910	2*	100	1*	100	1*	
				Mean =	2	100	3	99	2	
23	ENVIVE @ 5.3 OZ/A			211	5	100	5	100	5	
	CLASSIC	1.92 oz/a	A	509	2	100	3	100	3	
	HARMONY SG	0.3 oz/a	A	609	5	100	3	100	5	
	VALOR	3.03 oz/a	A	901	4*	100	1*	95	3*	
	ZIDUA	1.5 oz/a	A							
				Mean =	4	100	3	99	4	
24	VALOR SX	2 oz/a	A	212	5	100	3	95	3	
	WARRANT	3 pt/a	A	504	3	100	3	90	0	
				802	8	100	3	95	0	
				908	5*	100	1*	100	0*	
				Mean =	5	100	2	95	1	
25	TRIVENCE @ 8 OZ/A			301	8	100	5	99	5	
	CLASSIC	1.25 oz/a	A	402	2	100	5	99	0	
	SENCOR 75DF	4.75 oz/a	A	703	5	100	5	99	2	
	VALOR	2 oz/a	A	911	5*	100	3*	100	1*	
				Mean =	5	100	4	99	2	
26	PREFIX	2 pt/a	A	302	3	100	0	95	0	
	SENCOR	8 oz/a	A	409	0	100	0	95	0	
				610	5	100	0	95	0	
				903	3*	100	0*	100	0*	
				Mean =	3	100	0	96	0	
27	AUTHORITY MTZ	16 oz/a	A	303	5	100	15	100	10	
	DUAL II MAGNUM	1 pt/a	A	308	8	100	15	95	8	
				702	5	100	5	100	0	
				809	7	100	3	100	3	
				Mean =	6	100	10	99	5	
28	CANOPY	4 oz/a	A	304	7	100	5	99	5	
	FIERCE	2 oz/a	A	405	3	100	5	95	7	
				605	2	100	3	90	5	
				1004	4*	100*	2*	100	4*	
				Mean =	4	100	4	96	5	



# Purdue University Weed Science

Pest Type	GLXMA	W Weed AMAPA	GLXMA	W Weed AMAPA	GLXMA
Pest Code					
Pest Scientific Name		Amaranthus pal>		Amaranthus pal>	
Pest Name		Palmer amaranth		Palmer amaranth	
Crop Code	GLXMA		GLXMA		GLXMA
BBCH Scale	BSOY		BSOY		BSOY
Crop Scientific Name	Glycine max		Glycine max		Glycine max
Crop Name	Soybean		Soybean		Soybean
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C
Rating Date	5/28/2014	5/28/2014	6/6/2014	6/6/2014	6/19/2014
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN
Rating Unit	%	%	%	%	%
Days After First/Last Applic.	21 21	21 21	30 30	30 30	43 43
Trt-Eval Interval	21 DA-A	21 DA-A	30 DA-A	30 DA-A	43 DA-A
ARM Action Codes	P	P	P	P	P
Number of Decimals	0	0	0	0	0
<b>Trt Treatment</b>	<b>Rate</b>	<b>Appl</b>			
<b>No. Name</b>	<b>Rate Unit</b>	<b>Code Plot</b>	<b>1</b>	<b>2</b>	<b>3</b>
29 TRIVENCE @ 8 OZ/A		305	15	100	7
CLASSIC	1.25 oz/a	A 507	2	100	3
SENCOR 75DF	4.75 oz/a	A 709	2	100	3
VALOR	2 oz/a	A 1010	6*	100*	2*
ZIDUA	1.5 oz/a	A			100
		Mean =	6	100	4
30 Untreated Check		306	0	0	0
		512	0	0	0
		707	0	0	0
		812	0	0	0
		Mean =	0	0	0

# Purdue University Weed Science

Trt No.	Treatment Name	Rate	Appl	Plot	6	7	8
1	Untreated Check			101 403 805 1005 Mean =	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
2	WARRANT	3 pt/a	A	102 503 711 905 Mean =	50 35 70 70 56	0 0 0 0*	30 10 80 70 48
3	DUAL II MAGNUM	1 pt/a	A	103 412 801 1003 Mean =	40 35 50 60 46	0 0 0 0*	10 0 40 40 23
4	ZIDUA	3 oz/a	A	104 311 603 904 Mean =	80 90 85 99 89	0 0 0 0*	70 85 85 70 78
5	SENCOR	8 oz/a	A	105 312 608 912 Mean =	10 10 10 10 10	0 0 0 0*	0 0 5 10 4
6	SPARTAN	12 fl oz/a	A	106 511 607 907 Mean =	90 99 80 100 92	10 10 15 10*	80 95 60 85 80
7	VALOR SX	2 oz/a	A	107 407 704 909 Mean =	75 70 95 100 85	0 0 0 0*	60 50 90 97 74
8	AUTHORITY FIRST	6.5 oz/a	A	108 410 701 902 Mean =	80 85 95 95 89	5 0 3 1*	40 70 85 90 71

# Purdue University Weed Science

Pest Type	W Weed	W Weed	W Weed
Pest Code	AMAPA	AMAPA	AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>	Amaranthus pal>
Pest Name	Palmer amaranth	Palmer amaranth	Palmer amaranth
Crop Code		GLXMA	
BBCH Scale		BSOY	
Crop Scientific Name		Glycine max	
Crop Name		Soybean	
Part Rated	PLOT P	PLOT C	PLOT P
Rating Date	6/19/2014	7/3/2014	7/3/2014
Rating Type	CONTRO	PHYGEN	CONTRO
Rating Unit	%	%	%
Days After First/Last Applic.	43 43	57 57	57 57
Trt-Eval Interval	43 DA-A	57 DA-A	57 DA-A
ARM Action Codes	P	P	P
Number of Decimals	0	0	0
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code Plot	6 7 8
9 AUTHORITY XL	4 oz/a	A 109	75 5 40
		411	65 5 50
		803	95 0 92
		1012	80 2* 70
		Mean =	79 3 63
10 AUTHORITY ASSIST	6 fl oz/a	A 110	90 5 70
		502	75 0 60
		806	85 0 85
		1008	60 0* 40
		Mean =	78 1 64
11 VALOR XLT @ 3.5 OZ/A		111	95 5 95
VALOR	2.05 oz/a	A 307	99 3 95
CLASSIC	1.45 oz/a	A 611	95 5 90
		906	99 3* 90
		Mean =	97 4 93
12 ENVIVE @ 5.3 OZ/A		112	90 5 80
CLASSIC	1.92 oz/a	A 506	99 0 95
HARMONY SG	0.3 oz/a	A 710	95 0 90
VALOR	3.03 oz/a	A 807	95 0 90
		Mean =	95 1 89
13 DUAL II MAGNUM	1 pt/a	A 201	75 0 70
SENCOR	8 oz/a	A 510	40 0 20
		604	60 0 50
		1009	20 0* 0
		Mean =	49 0 35
14 CANOPY	4 oz/a	A 202	60 0 30
DUAL II MAGNUM	1 pt/a	A 310	95 0 65
		705	90 5 60
		811	90 0 80
		Mean =	84 1 59
15 CANOPY	4 oz/a	A 203	95 0 90
ZIDUA	1.5 oz/a	A 404	92 5 70
		804	75 0 65
		1006	90 0* 50
		Mean =	88 1 69
16 OPTILL PRO @ 12 OZ/A		204	85 0 65
OPTILL	2 oz/a	A 406	75 8 70
OUTLOOK	10 fl oz/a	A 612	60 0 35
		1007	85 1* 60
		Mean =	76 2 58
17 ANTHEM	6 fl oz/a	A 205	65 0 40
		408	70 0 50
		708	85 0 20
		1002	70 0* 30
		Mean =	73 0 35
18 AUTHORITY ELITE	25 fl oz/a	A 206	75 0 60
		505	95 0 90
		602	70 0 50
		1001	90 0* 90
		Mean =	83 0 73

# Purdue University Weed Science

Pest Type	W Weed	W Weed		W Weed
Pest Code	AMAPA	AMAPA		AMAPA
Pest Scientific Name	Amaranthus pal>	Amaranthus pal>		Amaranthus pal>
Pest Name	Palmer amaranth	Palmer amaranth		Palmer amaranth
Crop Code		GLXMA		
BBCH Scale		BSOY		
Crop Scientific Name		Glycine max		
Crop Name		Soybean		
Part Rated	PLOT P	PLOT C		PLOT P
Rating Date	6/19/2014	7/3/2014		7/3/2014
Rating Type	CONTRO	PHYGEN		CONTRO
Rating Unit	%	%		%
Days After First/Last Applic.	43 43	57 57		57 57
Trt-Eval Interval	43 DA-A	57 DA-A		57 DA-A
ARM Action Codes	P	P		P
Number of Decimals	0	0		0
Trt Treatment	Rate	Appl		
No. Name	Rate Unit	Code Plot	6	7
19 AUTHORITY XL	4 oz/a	A 207	99	3
DUAL II MAGNUM	1 pt/a	A 501	95	0
		601	90	0
		1011	90	0*
		Mean =	94	1
20 AUTHORITY MTZ	20 oz/a	A 208	85	10
		508	80	5
		606	90	0
		808	90	0
		Mean =	86	4
21 FIERCE	3 oz/a	A 209	95	0
		401	99	0
		712	75	0
		810	95	0
		Mean =	91	0
22 FIERCE XLT @ 4 OZ/A		210	95	3
FIERCE	2.93 oz/a	A 309	100	0
CLASSIC	1.07 oz/a	A 706	95	0
		910	100	0*
		Mean =	98	1
23 ENVIVE @ 5.3 OZ/A		211	99	0
CLASSIC	1.92 oz/a	A 509	100	3
HARMONY SG	0.3 oz/a	A 609	95	0
VALOR	3.03 oz/a	A 901	95	0*
ZIDUA	1.5 oz/a	A		90
		Mean =	97	1
24 VALOR SX	2 oz/a	A 212	95	0
WARRANT	3 pt/a	A 504	90	0
		802	85	0
		908	95	0*
		Mean =	91	0
25 TRIVENCE @ 8 OZ/A		301	99	5
CLASSIC	1.25 oz/a	A 402	95	0
SENCOR 75DF	4.75 oz/a	A 703	99	0
VALOR	2 oz/a	A 911	100	0*
		Mean =	98	1
26 PREFIX	2 pt/a	A 302	95	0
SENCOR	8 oz/a	A 409	90	0
		610	90	0
		903	90	0*
		Mean =	91	0
27 AUTHORITY MTZ	16 oz/a	A 303	90	5
DUAL II MAGNUM	1 pt/a	A 308	95	5
		702	99	0
		809	90	0
		Mean =	94	3
28 CANOPY	4 oz/a	A 304	99	0
FIERCE	2 oz/a	A 405	95	13
		605	90	5
		1004	90	4*
		Mean =	94	6

# Purdue University Weed Science

Pest Type		W Weed		W Weed
Pest Code		AMAPA		AMAPA
Pest Scientific Name		Amaranthus pal>		Amaranthus pal>
Pest Name		Palmer amaranth		Palmer amaranth
Crop Code			GLXMA	
BBCH Scale			BSOY	
Crop Scientific Name			Glycine max	
Crop Name			Soybean	
Part Rated		PLOT P	PLOT C	PLOT P
Rating Date		6/19/2014	7/3/2014	7/3/2014
Rating Type		CONTRO	PHYGEN	CONTRO
Rating Unit		%	%	%
Days After First/Last Applic.		43 43	57 57	57 57
Trt-Eval Interval		43 DA-A	57 DA-A	57 DA-A
ARM Action Codes		P	P	P
Number of Decimals		0	0	0
Trt Treatment	Rate	Appl		
No. Name	Rate Unit	Code Plot	6	7
29 TRIVENCE @ 8 OZ/A		305	100	2
CLASSIC	1.25 oz/a	A 507	99	0
SENCOR 75DF	4.75 oz/a	A 709	95	0
VALOR	2 oz/a	A 1010	100	0*
ZIDUA	1.5 oz/a	A		100
		Mean =	99	1
30 Untreated Check		306	0	0
		512	0	0
		707	0	0
		812	0	0
		Mean =	0	0

## Purdue University Weed Science

### COMPARISON OF PRE-EMERGENCE PROGRAMS ON PALMER AMARANTH

Trial ID: 14S-CCP-CTS-01      Location: Cass County      Trial Year: 2014  
Protocol ID: 14S-CCP-CTS-01      Investigator: Dr. Bill Johnson  
Project ID:      Study Director: Joe Ikley  
Sponsor Contact:

Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, = US

Crop Code

GLXMA, BSOY, Glycine max, = US

Part Rated

PLOT = plot

C = Crop is Part Rated

P = Pest is Part Rated

Rating Type

PHYGEN = phytotoxicity - general / injury

CONTRO = control / burndown or knockdown

Rating Unit

% = percent

ARM Action Codes

P = Rating scale of 0 to 100 (e.g. % control or injury)

# Purdue University Weed Science

## COMPARISON OF PRE-EMERGENCE PROGRAMS ON PALMER AMARANTH

Trial ID: 14S-CCP-CTS-01      Location: Cass County      Trial Year: 2014  
 Protocol ID: 14S-CCP-CTS-01      Investigator: Dr. Bill Johnson  
 Project ID:      Study Director: Joe Ikley  
    Sponsor Contact:

Pest Type		W Weed		W Weed		W Weed			
Pest Code		AMAPA		AMAPA		AMAPA			
Pest Scientific Name		Amaranthus pal>		Amaranthus pal>		Amaranthus pal>			
Pest Name		Palmer amaranth		Palmer amaranth		Palmer amaranth			
Crop Code	GLXMA		GLXMA		GLXMA				
BBCH Scale	BSOY		BSOY		BSOY				
Crop Scientific Name	Glycine max		Glycine max		Glycine max				
Crop Name	Soybean		Soybean		Soybean				
Part Rated	PLOT C	PLOT P	PLOT C	PLOT P	PLOT C	PLOT P			
Rating Date	5/28/2014	5/28/2014	6/6/2014	6/6/2014	6/19/2014	6/19/2014			
Rating Type	PHYGEN	CONTRO	PHYGEN	CONTRO	PHYGEN	CONTRO			
Rating Unit	%	%	%	%	%	%			
Days After First/Last Applic.	21 21	21 21	30 30	30 30	43 43	43 43			
Trt-Eval Interval	21 DA-A	21 DA-A	30 DA-A	30 DA-A	43 DA-A	43 DA-A			
ARM Action Codes	P	P	P	P	P	P			
Number of Decimals	0	0	0	0	0	0			
Trt No.	Treatment Name	Rate	Appl Code	1	2	3	4	5	6
		Rate Unit							
1	Untreated Check			0 d	0 c	0 e	0 f	0 d	0 d
2	WARRANT	3 pt/a	A	1 d	93 a	1 e	78 bcd	0 d	56 c
3	DUAL II MAGNUM	1 pt/a	A	2 d	95 a	1 de	73 d	0 d	46 c
4	ZIDUA	3 oz/a	A	1 d	100 a	1 de	95 a	0 d	89 ab
5	SENCOR	8 oz/a	A	3 cd	80 b	1 de	35 e	0 d	10 d
6	SPARTAN	12 fl oz/a	A	13 a	100 a	21 a	99 a	15 a	92 ab
7	VALOR SX	2 oz/a	A	3 cd	99 a	3 b-e	93 ab	0 d	85 ab
8	AUTHORITY FIRST	6.5 oz/a	A	10 abc	100 a	9 bcd	96 a	7 bc	89 ab
9	AUTHORITY XL	4 oz/a	A	13 ab	99 a	6 b-e	93 ab	4 bcd	79 ab
10	AUTHORITY ASSIST	6 fl oz/a	A	4 cd	100 a	3 b-e	93 ab	1 d	78 ab
11	VALOR XLT @ 3.5 OZ/A			4 cd	100 a	4 b-e	100 a	5 bcd	97 ab
	VALOR	2.05 oz/a	A						
	CLASSIC	1.45 oz/a	A						
12	ENVIVE @ 5.3 OZ/A			6 bcd	100 a	5 b-e	100 a	5 bcd	95 ab
	CLASSIC	1.92 oz/a	A						
	HARMONY SG	0.3 oz/a	A						
	VALOR	3.03 oz/a	A						
13	DUAL II MAGNUM	1 pt/a	A	0 d	92 a	1 de	75 cd	0 d	49 c
	SENCOR	8 oz/a	A						
14	CANOPY	4 oz/a	A	3 cd	100 a	4 b-e	93 ab	4 bcd	84 ab
	DUAL II MAGNUM	1 pt/a	A						
15	CANOPY	4 oz/a	A	4 cd	100 a	4 b-e	95 a	3 bcd	88 ab
	ZIDUA	1.5 oz/a	A						
16	OPTILL PRO @ 12 OZ/A			3 cd	100 a	9 bc	83 a-d	5 bcd	76 ab
	OPTILL	2 oz/a	A						
	OUTLOOK	10 fl oz/a	A						
17	ANTHEM	6 fl oz/a	A	0 d	100 a	0 e	88 abc	0 d	73 b
18	AUTHORITY ELITE	25 fl oz/a	A	0 d	100 a	4 b-e	89 abc	2 cd	83 ab
19	AUTHORITY XL	4 oz/a	A	3 cd	100 a	3 b-e	98 a	2 cd	94 ab
	DUAL II MAGNUM	1 pt/a	A						
20	AUTHORITY MTZ	20 oz/a	A	10 abc	100 a	11 b	95 a	8 b	86 ab
21	FIERCE	3 oz/a	A	3 cd	100 a	0 e	96 a	0 d	91 ab

Means followed by same letter do not significantly differ (P=.05, Student-Newman-Keuls)  
 Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.  
 Missing data estimates are included in columns: Yates=1,2,3,5,7

## Purdue University Weed Science

Pest Type Pest Code Pest Scientific Name Pest Name		W Weed AMAPA Amaranthus pal> Palmer amaranth		W Weed AMAPA Amaranthus pal> Palmer amaranth		W Weed AMAPA Amaranthus pal> Palmer amaranth		
Crop Code BBCH Scale Crop Scientific Name	GLXMA BSOY Glycine max		GLXMA BSOY Glycine max		GLXMA BSOY Glycine max			
Crop Name Part Rated Rating Date Rating Type Rating Unit Days After First/Last Applic. Trt-Eval Interval ARM Action Codes Number of Decimals	Soybean PLOT C 5/28/2014 PHYGEN % 21 21 21 DA-A P 0	PLOT P 5/28/2014 CONTRO % 21 21 21 DA-A P 0	Soybean PLOT C 6/6/2014 PHYGEN % 30 30 30 DA-A P 0	PLOT P 6/6/2014 CONTRO % 30 30 30 DA-A P 0	Soybean PLOT C 6/19/2014 PHYGEN % 43 43 43 DA-A P 0	PLOT P 6/19/2014 CONTRO % 43 43 43 DA-A P 0		
Trt Treatment No. Name	Rate Rate Unit	Appl Code	1	2	3	4	5	6
22 FIERCE XLT @ 4 OZ/A FIERCE CLASSIC	2.93 oz/a 1.07 oz/a	A A	2 d	100 a	3 b-e	99 a	2 bcd	98 a
23 ENVIVE @ 5.3 OZ/A CLASSIC HARMONY SG VALOR ZIDUA	1.92 oz/a 0.3 oz/a 3.03 oz/a 1.5 oz/a	A A A A	4 cd	100 a	3 b-e	99 a	4 bcd	97 ab
24 VALOR SX WARRANT	2 oz/a 3 pt/a	A A	5 cd	100 a	2 cde	95 a	1 d	91 ab
25 TRIVENCE @ 8 OZ/A CLASSIC SENCOR 75DF VALOR	1.25 oz/a 4.75 oz/a 2 oz/a	A A A	5 cd	100 a	4 b-e	99 a	2 cd	98 a
26 PREFIX SENCOR	2 pt/a 8 oz/a	A A	3 cd	100 a	0 e	96 a	0 d	91 ab
27 AUTHORITY MTZ DUAL II MAGNUM	16 oz/a 1 pt/a	A A	6 bcd	100 a	10 bc	99 a	5 bcd	94 ab
28 CANOPY FIERCE	4 oz/a 2 oz/a	A A	4 cd	100 a	4 b-e	96 a	5 bcd	94 ab
29 TRIVENCE @ 8 OZ/A CLASSIC SENCOR 75DF VALOR ZIDUA	1.25 oz/a 4.75 oz/a 2 oz/a 1.5 oz/a	A A A A	6 bcd	100 a	4 b-e	99 a	2 cd	99 a
30 Untreated Check			0 d	0 c	0 e	0 f	0 d	0 d
LSD (P=.05)			4.4	4.8	4.4	10.0	3.0	13.6
Standard Deviation			3.1	3.4	3.1	7.1	2.2	9.6
CV			76.4	3.72	78.05	8.35	79.12	12.51
Bartlett's X2			29.446	16.64	30.382	66.11	20.261	59.457
P(Bartlett's X2)			0.166	0.011*	0.085	0.001*	0.318	0.001*
Skewness			1.7092*	-3.1302*	2.1428*	-2.3701*	1.8323*	-1.6578*
Kurtosis			4.2379*	8.2846*	6.3323*	4.6703*	4.1748*	1.6287*



# Purdue University Weed Science

Trt No.	Treatment Name	Rate	Unit	Appl Code	7	8
1	Untreated Check				0 b	0 e
2	WARRANT	3 pt/a		A	0 b	48 bcd
3	DUAL II MAGNUM	1 pt/a		A	0 b	23 de
4	ZIDUA	3 oz/a		A	0 b	78 ab
5	SENCOR	8 oz/a		A	0 b	4 e
6	SPARTAN	12 fl oz/a		A	11 a	80 ab
7	VALOR SX	2 oz/a		A	0 b	74 ab
8	AUTHORITY FIRST	6.5 oz/a		A	2 b	71 abc
9	AUTHORITY XL	4 oz/a		A	3 b	63 abc
10	AUTHORITY ASSIST	6 fl oz/a		A	1 b	64 abc
11	VALOR XLT @ 3.5 OZ/A				4 b	93 a
	VALOR	2.05 oz/a		A		
	CLASSIC	1.45 oz/a		A		
12	ENVIVE @ 5.3 OZ/A				1 b	89 ab
	CLASSIC	1.92 oz/a		A		
	HARMONY SG	0.3 oz/a		A		
	VALOR	3.03 oz/a		A		
13	DUAL II MAGNUM	1 pt/a		A	0 b	35 cd
	SENCOR	8 oz/a		A		
14	CANOPY	4 oz/a		A	1 b	59 abc
	DUAL II MAGNUM	1 pt/a		A		
15	CANOPY	4 oz/a		A	1 b	69 abc
	ZIDUA	1.5 oz/a		A		
16	OPTILL PRO @ 12 OZ/A				2 b	58 abc
	OPTILL	2 oz/a		A		
	OUTLOOK	10 fl oz/a		A		
17	ANTHEM	6 fl oz/a		A	0 b	35 cd
18	AUTHORITY ELITE	25 fl oz/a		A	0 b	73 abc
19	AUTHORITY XL	4 oz/a		A	1 b	83 ab
	DUAL II MAGNUM	1 pt/a		A		
20	AUTHORITY MTZ	20 oz/a		A	4 b	75 ab
21	FIERCE	3 oz/a		A	0 b	83 ab

Pest Type		W Weed
Pest Code		AMAPA
Pest Scientific Name		Amaranthus pal>
Pest Name		Palmer amaranth
Crop Code	GLXMA	
BBCH Scale	BSOY	
Crop Scientific Name	Glycine max	
Crop Name	Soybean	
Part Rated	PLOT C	PLOT P
Rating Date	7/3/2014	7/3/2014
Rating Type	PHYGEN	CONTRO
Rating Unit	%	%
Days After First/Last Applic.	57 57	57 57
Trt-Eval Interval	57 DA-A	57 DA-A
ARM Action Codes	P	P
Number of Decimals	0	0

## Purdue University Weed Science

Pest Type			W Weed
Pest Code			AMAPA
Pest Scientific Name			Amaranthus pal>
Pest Name			Palmer amaranth
Crop Code	GLXMA		
BBCH Scale	BSOY		
Crop Scientific Name	Glycine max		
Crop Name	Soybean		
Part Rated	PLOT C		PLOT P
Rating Date	7/3/2014		7/3/2014
Rating Type	PHYGEN		CONTRO
Rating Unit	%		%
Days After First/Last Applic.	57 57		57 57
Trt-Eval Interval	57 DA-A		57 DA-A
ARM Action Codes	P		P
Number of Decimals	0		0
Trt Treatment	Rate	Appl	
No. Name	Rate Unit	Code	
			7                      8
22 FIERCE XLT @ 4 OZ/A			1 b                      92 a
FIERCE	2.93 oz/a	A	
CLASSIC	1.07 oz/a	A	
23 ENVIVE @ 5.3 OZ/A			1 b                      91 a
CLASSIC	1.92 oz/a	A	
HARMONY SG	0.3 oz/a	A	
VALOR	3.03 oz/a	A	
ZIDUA	1.5 oz/a	A	
24 VALOR SX	2 oz/a	A	0 b                      90 a
WARRANT	3 pt/a	A	
25 TRIVENCE @ 8 OZ/A			1 b                      89 ab
CLASSIC	1.25 oz/a	A	
SENCOR 75DF	4.75 oz/a	A	
VALOR	2 oz/a	A	
26 PREFIX	2 pt/a	A	0 b                      70 abc
SENCOR	8 oz/a	A	
27 AUTHORITY MTZ	16 oz/a	A	3 b                      84 ab
DUAL II MAGNUM	1 pt/a	A	
28 CANOPY	4 oz/a	A	6 b                      86 ab
FIERCE	2 oz/a	A	
29 TRIVENCE @ 8 OZ/A			1 b                      96 a
CLASSIC	1.25 oz/a	A	
SENCOR 75DF	4.75 oz/a	A	
VALOR	2 oz/a	A	
ZIDUA	1.5 oz/a	A	
30 Untreated Check			0 b                      0 e
LSD (P=.05)		3.4	22.7
Standard Deviation		2.4	16.0
CV		162.06	24.67
Bartlett's X2		13.243	50.557
P(Bartlett's X2)		0.655	0.004*
Skewness		2.2615*	-0.9847*
Kurtosis		5.2731*	-0.2862

# Purdue University Weed Science

## COMPARISON OF PRE-EMERGENCE PROGRAMS ON PALMER AMARANTH

Trial ID: 14S-CCP-CTS-01      Location: Cass County      Trial Year: 2014  
 Protocol ID: 14S-CCP-CTS-01      Investigator: Dr. Bill Johnson  
 Project ID:      Study Director: Joe Ikley  
    Sponsor Contact:

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 5/28/2014 PHYGEN % 21 21 21 DA-A P 0 (Data Column 1)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	96	2243.642887			
Replicate	3	135.377388	45.125796	4.709	0.0049
Treatment	29	1494.923681	51.549092	5.379	0.0001
Error	64	613.341818	9.583466		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 5/28/2014 CONTRO % 21 21 21 DA-A P 0 (Data Column 2)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	108	75234.062055			
Replicate	3	43.214612	14.404871	1.234	0.3034
Treatment	29	74303.468699	2562.188576	219.440	0.0001
Error	76	887.378744	11.676036		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 6/6/2014 PHYGEN % 30 30 30 DA-A P 0 (Data Column 3)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	96	3008.216431			
Replicate	3	125.776533	41.925511	4.350	0.0075
Treatment	29	2265.597156	78.124040	8.106	0.0001
Error	64	616.842743	9.638168		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 6/6/2014 CONTRO % 30 30 30 DA-A P 0 (Data Column 4)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	119	85911.466667			
Replicate	3	984.333333	328.111111	6.547	0.0005
Treatment	29	80566.966667	2778.171264	55.434	0.0001
Error	87	4360.166667	50.116858		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 6/19/2014 PHYGEN % 43 43 43 DA-A P 0 (Data Column 5)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	96	1657.016677			
Replicate	3	67.029077	22.343026	4.829	0.0043
Treatment	29	1293.888660	44.616850	9.644	0.0001
Error	64	296.098940	4.626546		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 6/19/2014 CONTRO % 43 43 43 DA-A P 0 (Data Column 6)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	119	101188.366667			
Replicate	3	124.966667	41.655556	0.454	0.7155
Treatment	29	93072.866667	3209.409195	34.944	0.0001
Error	87	7990.533333	91.845211		

Randomized Complete Block (RCB) AOV For GLXMA BSOY Glycine max Soybean PLOT C 7/3/2014 PHYGEN % 57 57 57 DA-A P 0 (Data Column 7)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	96	1040.038490			
Replicate	3	37.212596	12.404199	2.210	0.0955
Treatment	29	643.590626	22.192780	3.954	0.0001
Error	64	359.235268	5.613051		

Randomized Complete Block (RCB) AOV For W Weed AMAPA Amaranthus palmeri Palmer amaranth PLOT P 7/3/2014 CONTRO % 57 57 57 DA-A P 0 (Data Column 8)

Source	DF	Sum of Squares	Mean Square	F	Prob(F)
Total	119	116124.925000			
Replicate	3	768.691667	256.230556	0.996	0.3988
Treatment	29	92968.675000	3205.816379	12.458	0.0001
Error	87	22387.558333	257.328257		

Pest Type

W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop

Pest Code

AMAPA, Amaranthus palmeri, = US

Crop Code

## Purdue University Weed Science

GLXMA, BSOY, Glycine max, = US

Part Rated

PLOT = plot

C = Crop is Part Rated

P = Pest is Part Rated

Rating Type

PHYGEN = phytotoxicity - general / injury

CONTRO = control / burndown or knockdown

Rating Unit

% = percent

ARM Action Codes

P = Rating scale of 0 to 100 (e.g. % control or injury)